

FIG. 1 PRIOR ART

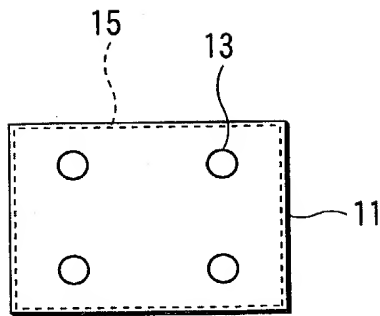


FIG. 2A  
PRIOR ART

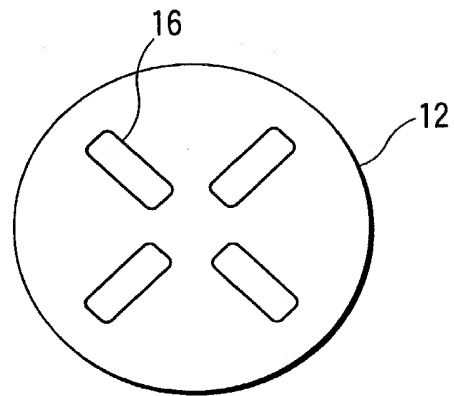


FIG. 2B  
PRIOR ART

FIG. 3A  
PRIOR ART

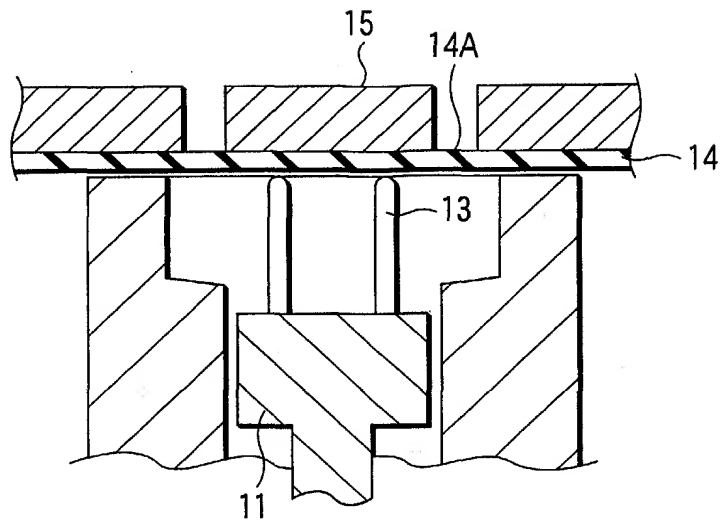


FIG. 3B  
PRIOR ART

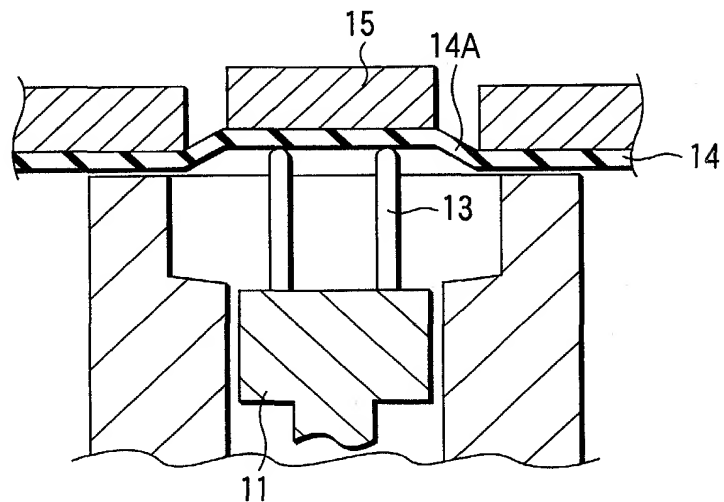
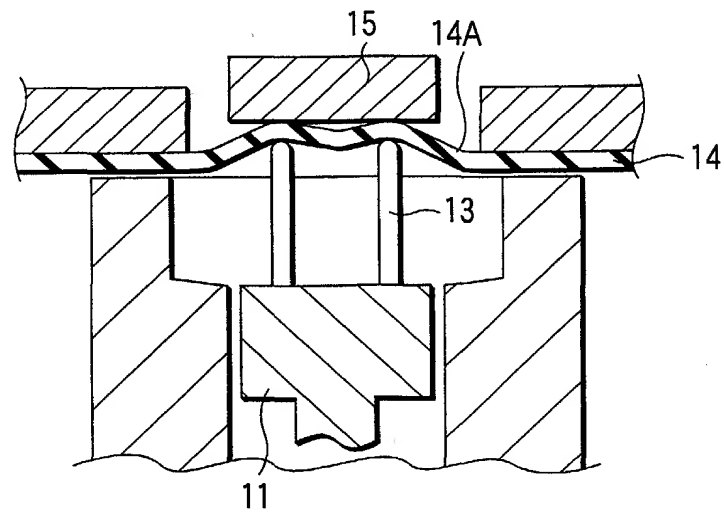


FIG. 3C  
PRIOR ART



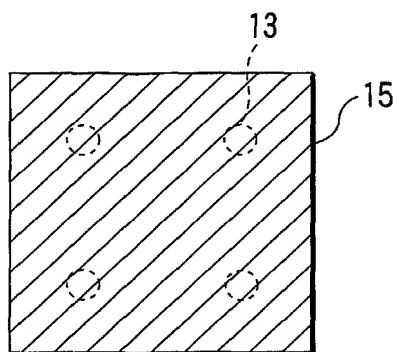


FIG. 4A  
PRIOR ART

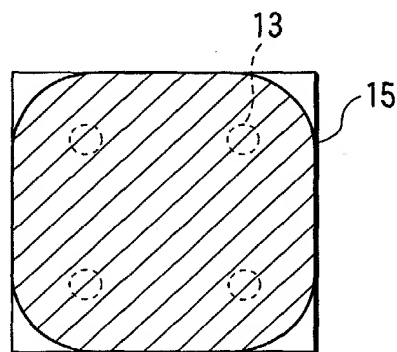


FIG. 4B  
PRIOR ART

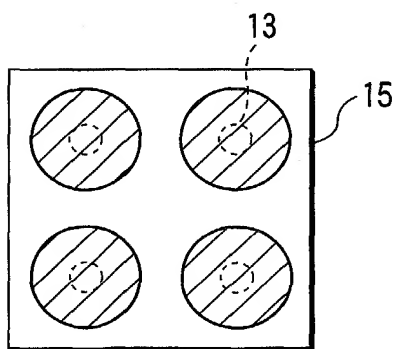


FIG. 4C  
PRIOR ART

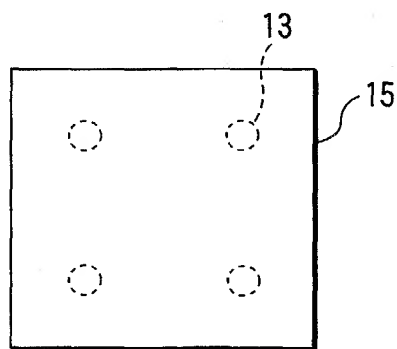


FIG. 4D  
PRIOR ART

FIG. 5A  
PRIOR ART

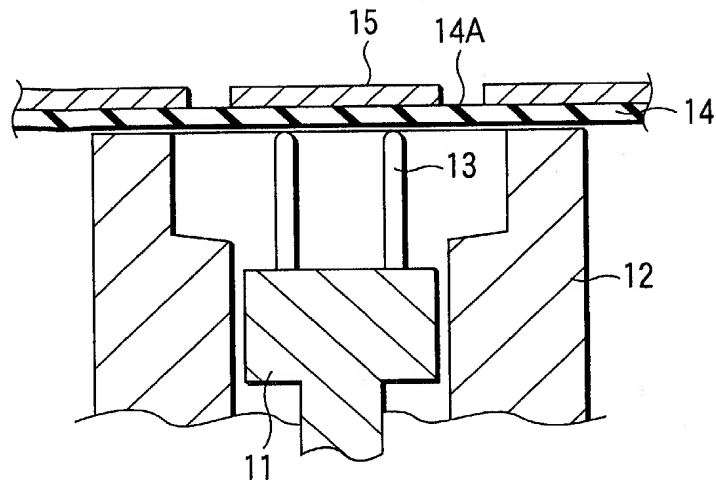


FIG. 5B  
PRIOR ART

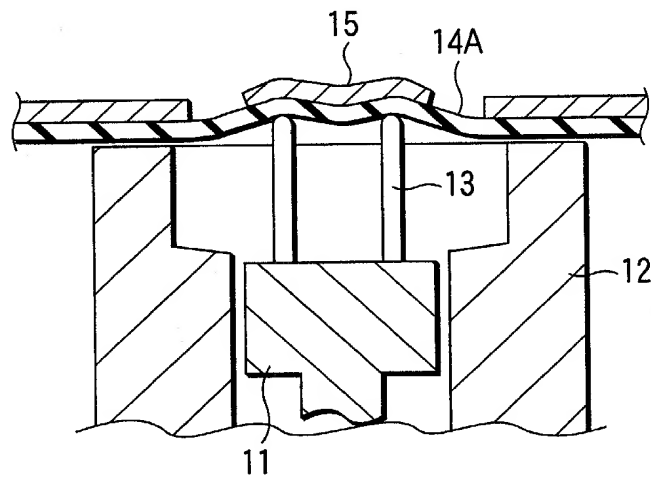
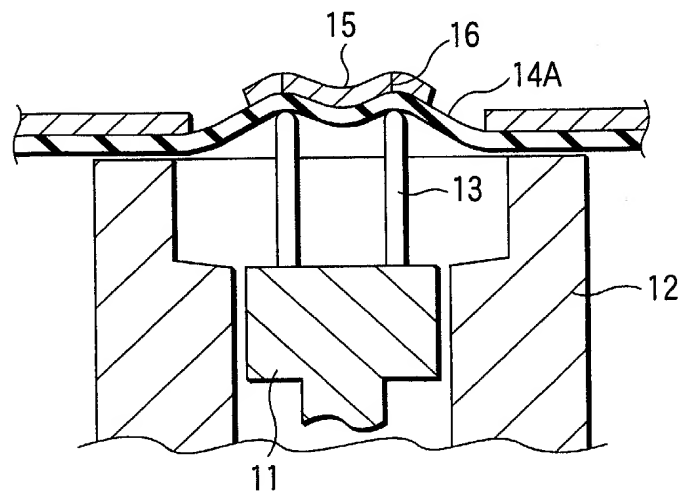


FIG. 5C  
PRIOR ART



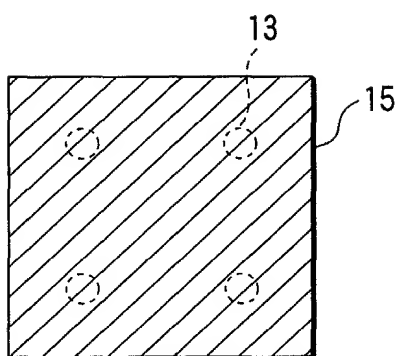


FIG. 6A  
PRIOR ART

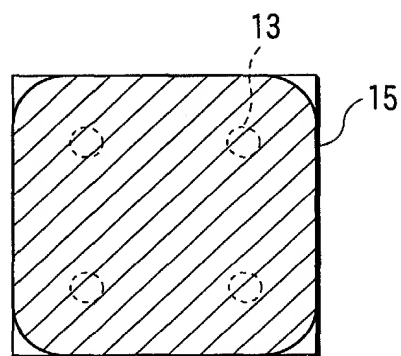


FIG. 6B  
PRIOR ART

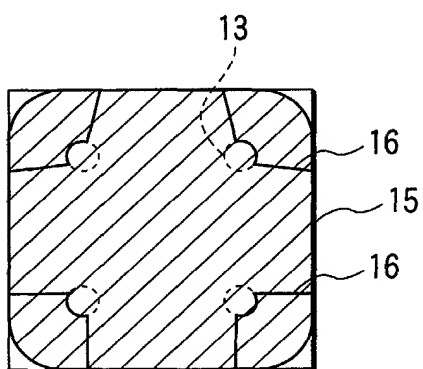


FIG. 6C  
PRIOR ART

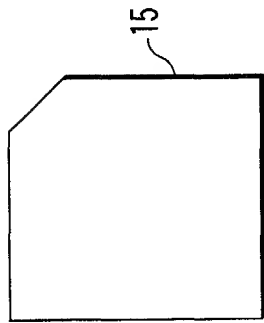


FIG. 7A  
PRIOR ART

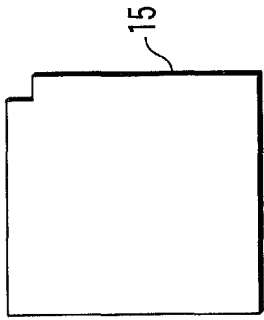


FIG. 7B  
PRIOR ART

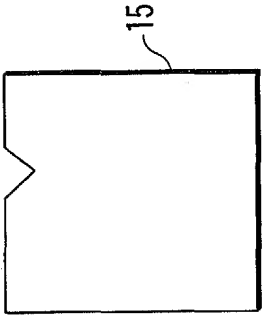


FIG. 7C  
PRIOR ART

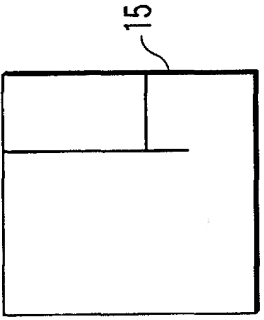


FIG. 7D  
PRIOR ART

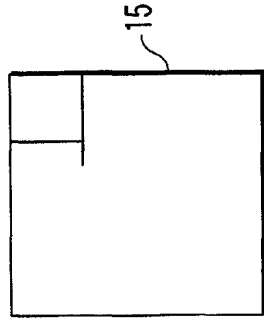


FIG. 7E  
PRIOR ART

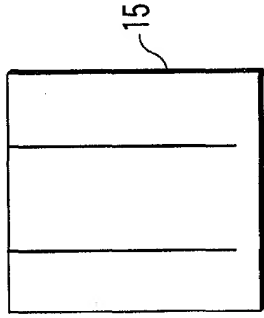


FIG. 7F  
PRIOR ART

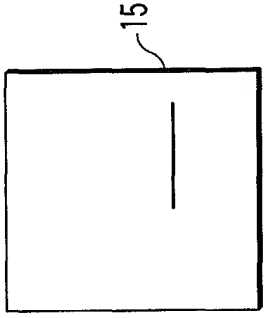


FIG. 7G  
PRIOR ART

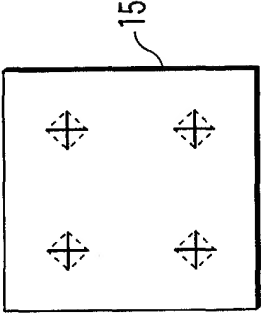


FIG. 7H  
PRIOR ART

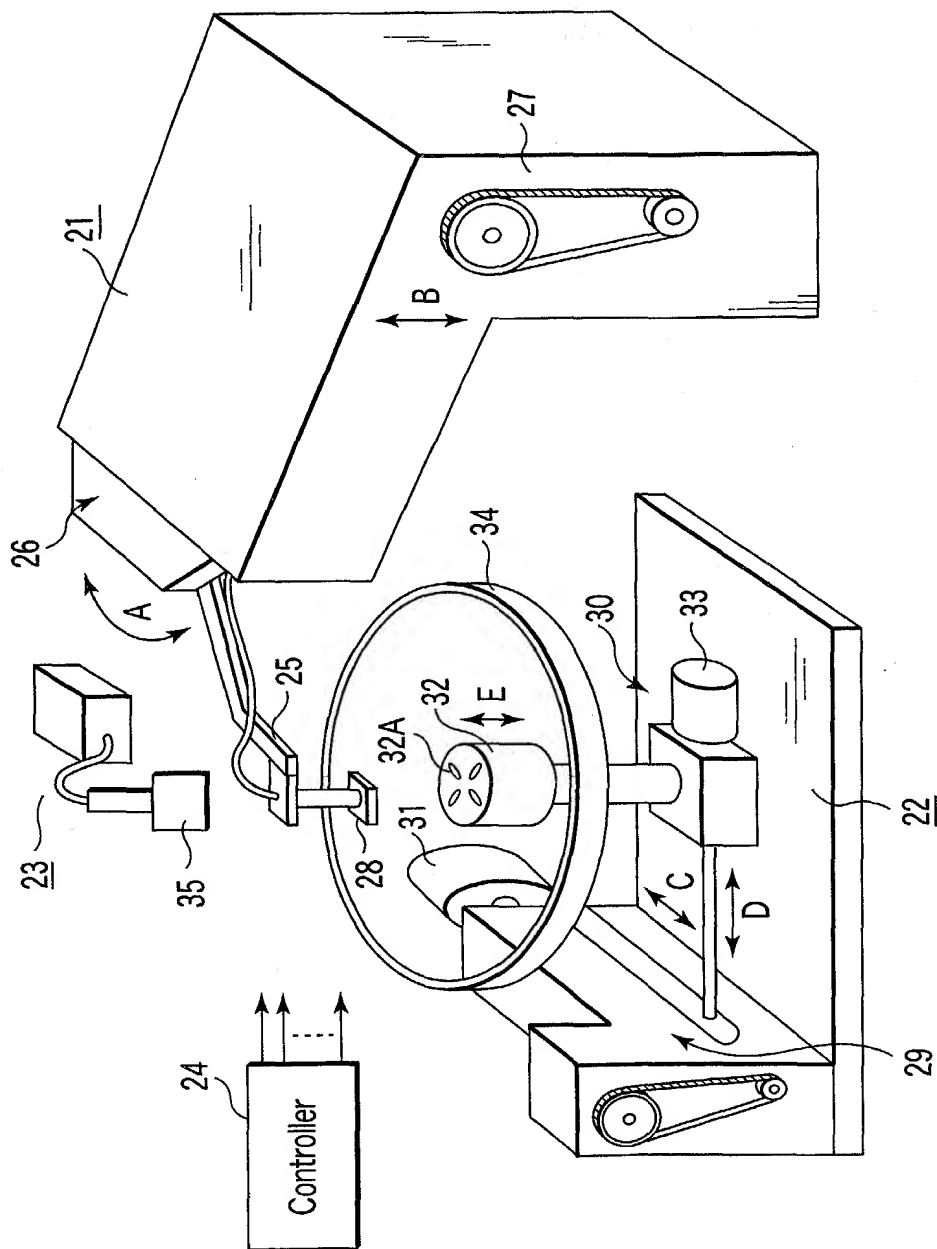


FIG. 8

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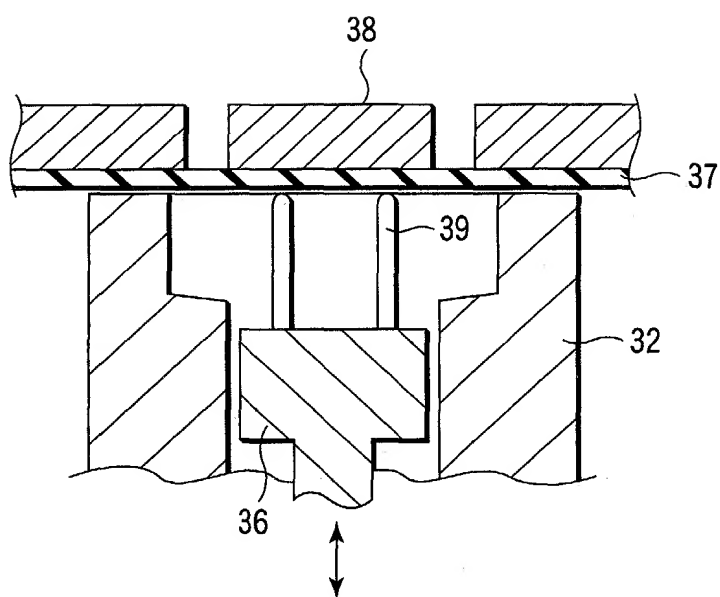


FIG. 9



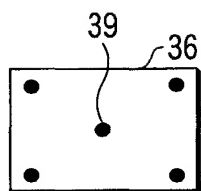


FIG. 10A

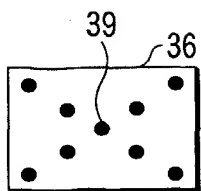


FIG. 10B

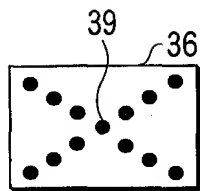


FIG. 10C

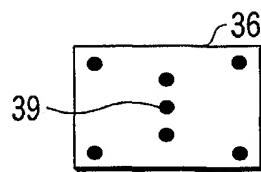


FIG. 10D

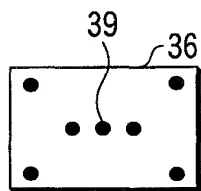


FIG. 10E

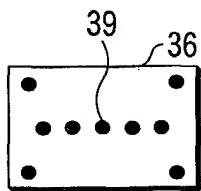


FIG. 10F

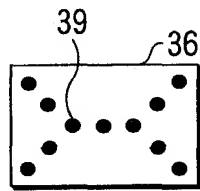


FIG. 10G

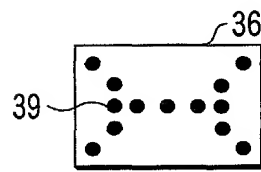


FIG. 10H

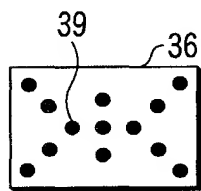


FIG. 10I

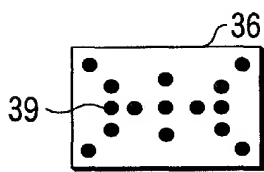


FIG. 10J

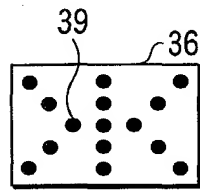


FIG. 10K

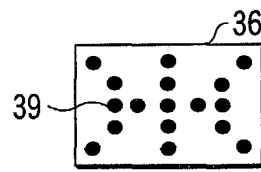


FIG. 10L

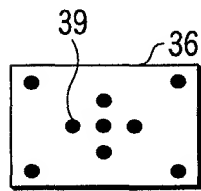


FIG. 10M

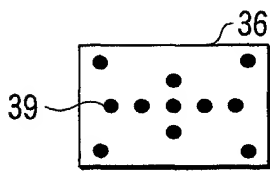


FIG. 10N

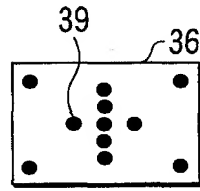


FIG. 10O

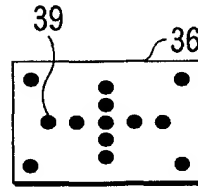


FIG. 10P

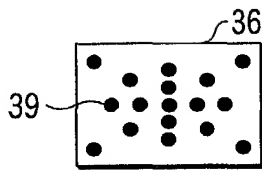


FIG. 10Q

FIG. 10A-10Q

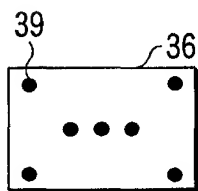


FIG. 11A

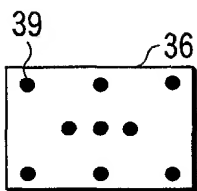


FIG. 11B

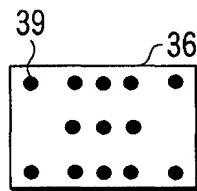


FIG. 11C

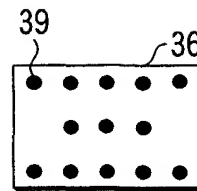


FIG. 11D

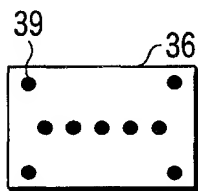


FIG. 11E

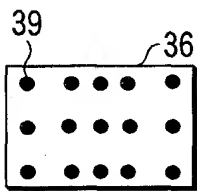


FIG. 11F

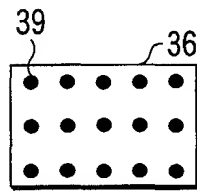


FIG. 11G

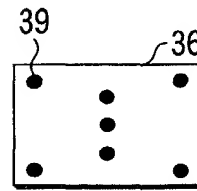


FIG. 11H

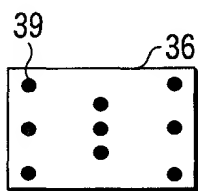


FIG. 11I

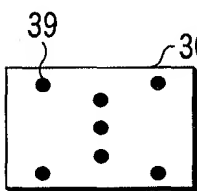


FIG. 11J

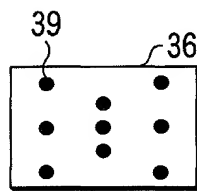


FIG. 11K

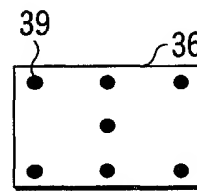


FIG. 11L

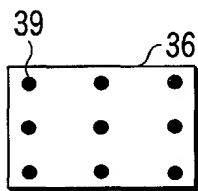


FIG. 11M

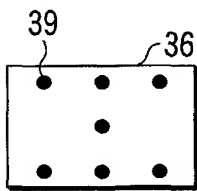


FIG. 11N

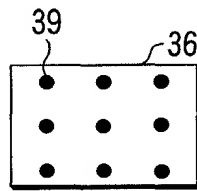


FIG. 11O

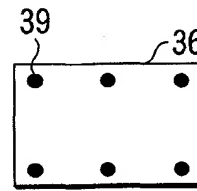


FIG. 11P

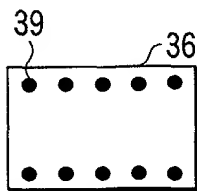


FIG. 11Q

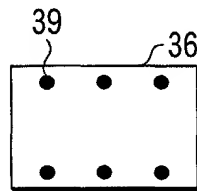


FIG. 11R

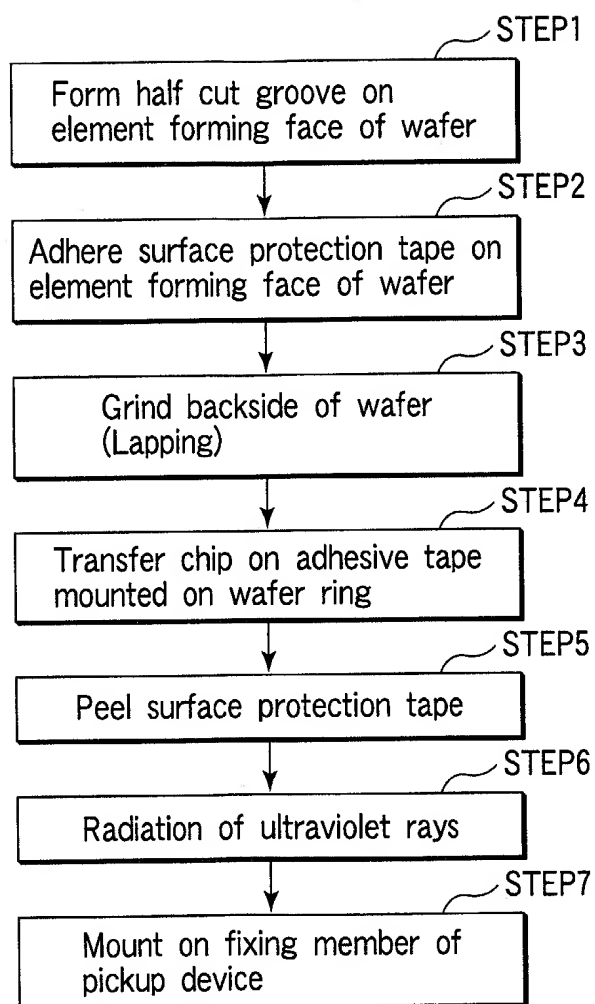
[illegible]

FIG. 12

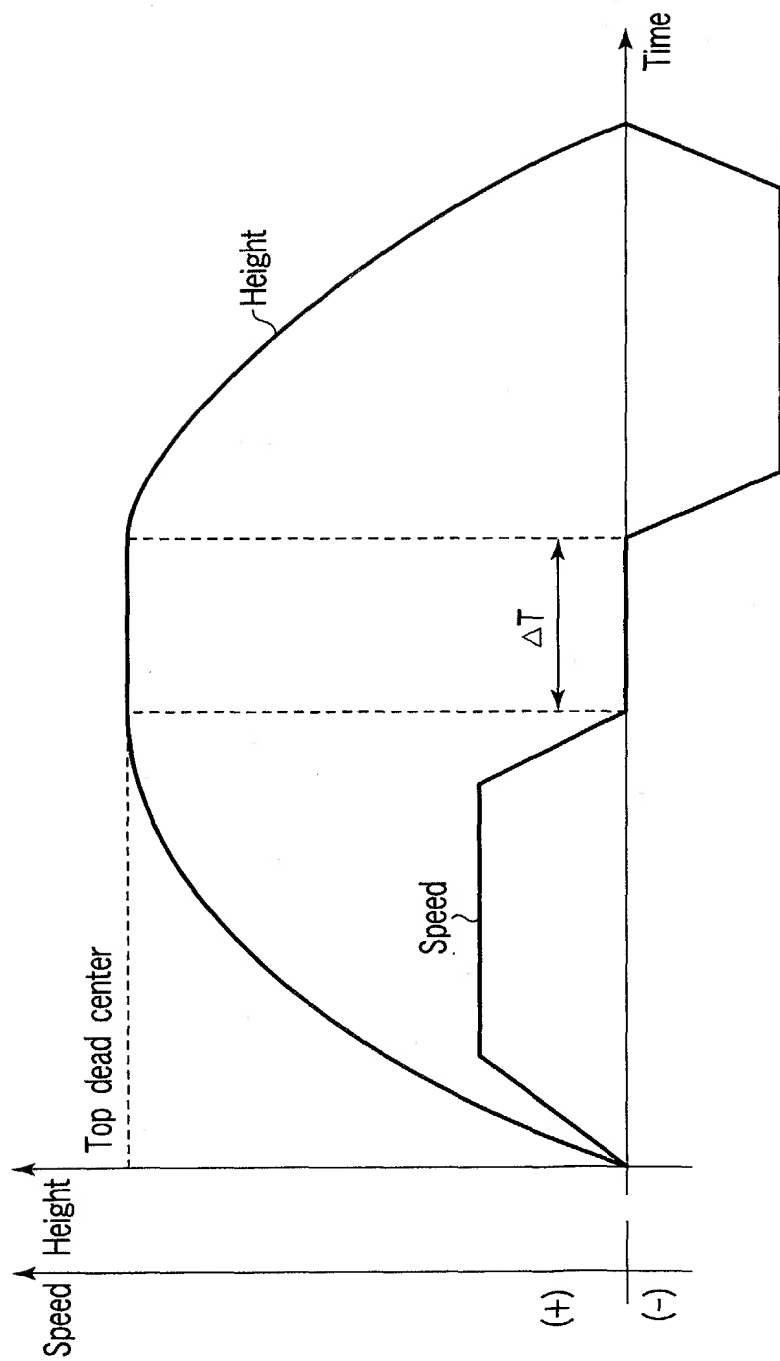


FIG. 13

The graph shows Thrusting load on the vertical axis and Time on the horizontal axis. Two curves are plotted: a dashed line for the 'Conventional pickup device' and a solid line for the 'Present embodiment'. The conventional device curve rises to a peak and then drops sharply to a low level. The present embodiment curve rises more gradually to a lower peak, then drops to a slightly higher level, rises again to a second, lower peak, and finally drops to a low level.

A schematic diagram of a beam 38 supported by four rollers P1, P2, P3, and P4. A rectangular load 50 is applied to the beam between supports P3 and P4. A downward force F is applied to the center of the load. The distance between P1 and P2 is labeled 'b', and the distance between P3 and P4 is labeled 'a'. The height of the beam is labeled 'h'.

FIG. 15A

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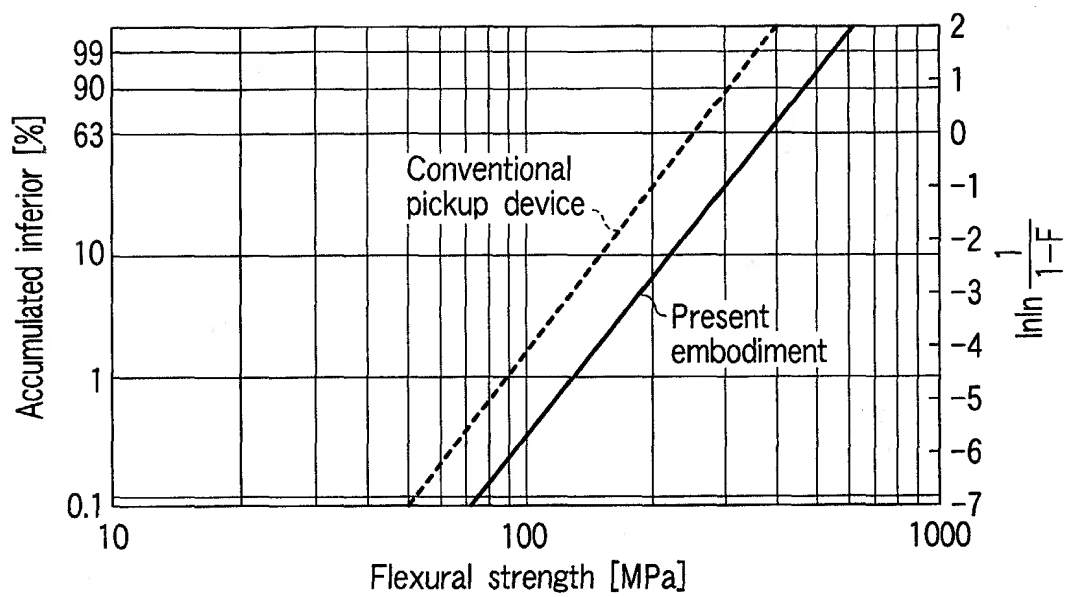


FIG. 15B

0920638.080301

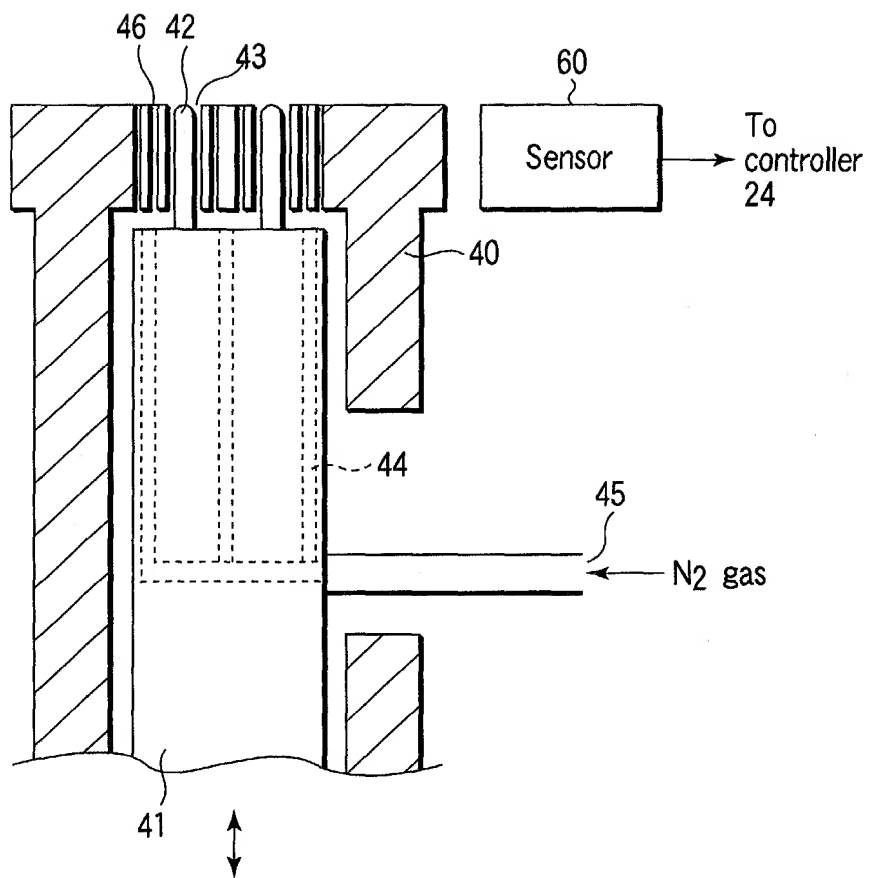


FIG. 16

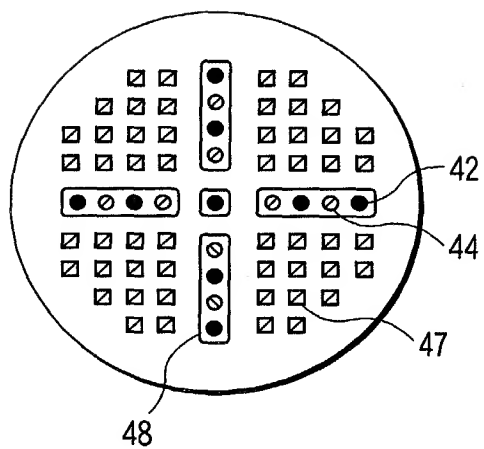


FIG. 17A

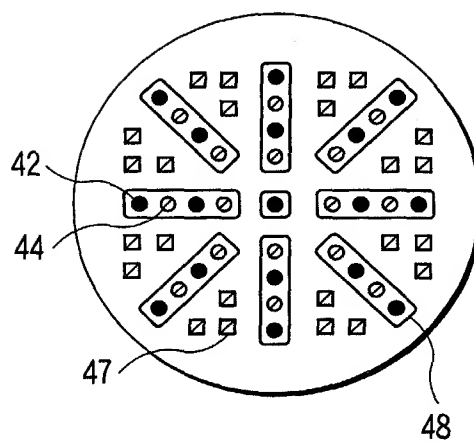


FIG. 18A

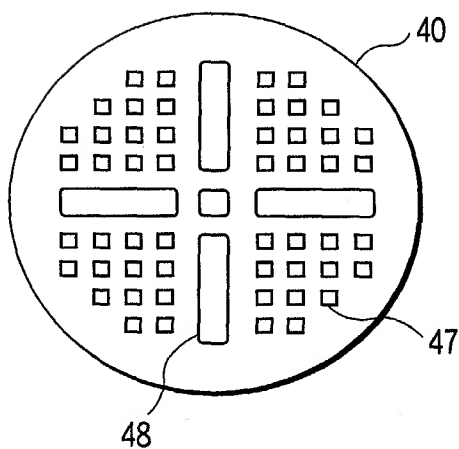


FIG. 17B

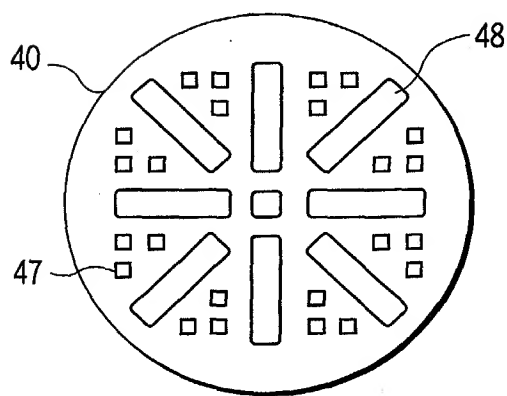


FIG. 18B